

Neal Bagai

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EDUCATION

Vanderbilt University

Nashville, TN

Bachelor's of Science in Computer Science, Minor in Data Science

Aug. 2022 – May 2026

- Coursework: Technical Communications, Principles of SWE, Operating Systems, Databases, Machine Learning, Cloud Computing, Physics I & II, Algorithms

University School of Nashville

Nashville, TN

High School Diploma - 3.9 GPA

Aug. 2019 – May 2022

EXPERIENCE

Undergraduate Research Intern

May 2025 – Present

Institute for Space and Defense Electronics (ISDE)

Nashville, TN

- Developed research proposal: “Investigating the resilience of analog in-memory computing (AIMC) for in-space edge AI applications,” receiving funding from the Vanderbilt Summer Research Program.
- Investigated novel configurations of AIMC array to reduce radiation effects’ impact on neural network accuracy.
- Findings presented as a poster during end-of-year Vanderbilt research symposium.

Flight Software Engineer

August 2024 – Present

Vanderbilt Aerospace Design Lab (VADL)

Nashville, TN

- Participated in interdisciplinary team collaboration on design, development, and proposal writing.
- Developed payload electronics including APRS radio system for 2025 competition (Placed 5th out of 53 teams).
- Leading the payload control software team as senior member for the 2026 competition.

Energy Procurement and Data Analysis Intern

June 2024 – September 2024

HCA Healthcare

Nashville, TN

- Evaluated energy contracting methodology, energy futures pricing, hedging, and sustainability markets.
- Conceptualized and created an energy incentive and rebates web application using Django for member hospitals aimed at saving millions of dollars for sustainable energy projects.

Undergraduate Research Assistant

January 2023 – June 2024

Data Science Institute, Vanderbilt University

Nashville, TN

- Developed deep learning solutions for archeology, psychology, and education departments; deploying transformer image classifiers and fine tuned LLMs.
- Presented weekly updates in demo meetings and overview of project at the end-of-semester research symposium.

Maizie Zhou Computational Biology Lab, Vanderbilt University

Nashville, TN

- Tested Spatial Transcriptomics alignment, clustering, and integration methods, recording results and processes.
- Developed Python programs to convert DNA sequence files to VCF files containing genetic variation information, and contributed to a research paper.

PROJECTS AND ORGANIZATIONS

Embedded Systems Projects | Python, Arduino, OpenCV

June 2020 – Present

- Integrated LightARPS tracking system, tested onboard payload, and analyzed flight data for weather balloon launches to +90k feet as president of Vanderbilt Satellite Club (VUSAT).
- Developed Wi-Fi connected rainwater measuring devices around campus with Engineering Without Borders as part of entry for EPA Rainworks competition.

Software Development Projects | C++/C, Java, Python, Flask, Git, Selenium

June 2019 – Present

- Incorporated Flask web app with Google Assistant to tell users nearby aircraft flying overhead. Later deployed as interactive webapp using three.js and Docker.
- Explored efficient algorithm development in C++ and Java in coursework. Utilized test driven development.

SKILLS

Languages: Spanish, English, Java, Python, C++, HTML/CSS, R, Visual Basic

Frameworks & Libraries: Flask, Django, JUnit, Selenium, OpenCV, pandas, NumPy, tidyverse, PyTorch

Tools & Platforms: Git, Google Cloud Platform, Arduino, Unity, Fusion 360, Bloomberg Terminal, Linux/Unix

Soft Skills: Teamwork, Customer Service, Adaptability, Technical Communications, Organization